Fluid thrust bearing reliability analysis using finite element modelling and response surface method

Titre	Fluid thrust bearing reliability analysis using finite element modelling and response surface method
Type de publication	Article de revue
Auteur	Charki, Abderafi [1], Elsayed, E.-A. [2], Guérin, Fabrice [3], Bigaud, David [4]
Editeur	Inderscience
Type	Article scientifique dans une revue à comité de lecture
Année	2009
Langue	Anglais
Date	2009/01
Numéro	2
Pagination	188 - 205
Volume	1
Titre de la revue	International Journal of Quality Engineering and Technology
ISSN	1757-2177 / 1757-2185
Résumé en anglais	This paper presents a methodology for the failure probability evaluation of a thrust fluid bearing which plays a significant role in stability of machines rotors, mechatronic systems and high precision metrology systems. The static and dynamic behaviour of a fluid bearing depends on several parameters such as external load, the dimensions of the bearing, the supply pressure, the manufacturing capability and fluid properties. In this paper, the analysis of the fluid bearing characteristics is carried out using the finite element method (FEM). Stochastic response surface methodology (SRSM) is used for the approximation of the performance function of a bearing and the reliability is assessed by Monte Carlo simulation (MCS) and first order reliability method (FORM).
URL de la notice	http://okina.univ-angers.fr/publications/ua1404 [5]
DOI	10.1504/IJQET.2009.031129 [6]
Lien vers le document	http://dx.doi.org/10.1504/IJQET.2009.031129 [6]

Liens

[1] http://okina.univ-angers.fr/abderafi.charki/publications
[2] http://okina.univ-angers.fr/publications?f%5Bauthor%5D=1975
[3] http://okina.univ-angers.fr/fabrice.guerin/publications
[4] http://okina.univ-angers.fr/d.bigaud/publications
[5] http://okina.univ-angers.fr/publications/ua1404
[6] http://dx.doi.org/10.1504/IJQET.2009.031129